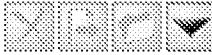


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1. [Cytokinin sensing systems using microorganisms.](#)
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2. [Functional analysis of AHK1/ATHK1 and cytokinin receptor histidine kinases in response to abscisic acid, drought, and salt stress in Arabidopsis.](#)
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Proc Natl Acad Sci U S A. 2007 Dec 18;104(51):20623-8. Epub 2007 Dec 12.
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3. [Cytokinin receptors are involved in alkamide regulation of root and shoot development in Arabidopsis.](#)
López-Bucio J, Millán-Godínez M, Méndez-Bravo A, Morquecho-Contreras A, Ramírez-Chávez E, Molina-Torres J, Pérez-Torres A, Higuchi M, Kakimoto T, Herrera-Estrella L.
Plant Physiol. 2007 Dec;145(4):1703-13. Epub 2007 Oct 26.
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4. [AHK5 histidine kinase regulates root elongation through an ETR1-dependent abscisic acid and ethylene signaling pathway in Arabidopsis thaliana.](#)
Iwama A, Yamashino T, Tanaka Y, Sakakibara H, Kakimoto T, Sato S, Kato T, Tabata S, Nagatani A, Mizuno T.
Plant Cell Physiol. 2007 Feb;48(2):375-80. Epub 2007 Jan 3.
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5. [Cytokinins regulate a bidirectional phosphorelay network in Arabidopsis.](#)
Mähönen AP, Higuchi M, Törmäkangas K, Miyawaki K, Pischke MS, Sussman MR, Helariutta Y, Kakimoto T.
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Higuchi M, Pischke MS, Mähönen AP, Miyawaki K, Hashimoto Y, Seki M, Kobayashi M, Shinozaki K, Kato T, Tabata S, Helariutta Y, Sussman MR, Kakimoto T.
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PMID: 15166290 [PubMed - Indexed for MEDLINE]
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7. [Identification of CRE1 as a cytokinin receptor from Arabidopsis.](#)
Inoue T, Higuchi M, Hashimoto Y, Seki M, Kobayashi M, Kato T, Tabata S, Shinozaki K, Kakimoto T.
Nature. 2001 Feb 22;409(6823):1060-3.
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1. Regulation of exocytosis by cyclin-dependent kinase 5 via phosphorylation of Munc18.
Fletcher Al, Shuang R, Giovannucci DR, Zhang L, Bittner MA, Stuenkel EL.
J Biol Chem. 1999 Feb 12;274(7):4027-35.
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2. Phosphorylation and activation of p42 and p44 mitogen-activated protein kinase are required for the P2 purinoceptor stimulation of endothelial prostacyclin production.
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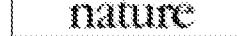
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Nature. 2001 Feb 22;409(6823):1060-3.
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Nature. 2001 Feb 22;409(6823):1060-3.

Identification of CRE1 as a cytokinin receptor from Arabidopsis.

Inoue T, Higuchi M, Hashimoto Y, Seki M, Kobayashi M, Kato T, Tabata S, Shinozaki K, Kakimoto T.

Department of Biology, Graduate School of Science, Osaka University, Toyonaka, Japan.

Cytokinins are a class of plant hormones that are central to the regulation of cell division and differentiation in plants. It has been proposed that they are detected by a two-component system, because overexpression of the histidine kinase gene CKI1 induces typical cytokinin responses and genes for a set of response regulators of two-component systems can be induced by cytokinins. Two-component systems use a histidine kinase as an environmental sensor and rely on a phosphorelay for signal transduction. They are common in microorganisms, and are also emerging as important signal detection routes in plants. Here we report the identification of a cytokinin receptor. We identified *Arabidopsis cre1* (cytokinin response 1) mutants, which exhibited reduced responses to cytokinins. The mutated gene CRE1 encodes a histidine kinase. CRE1 expression conferred a cytokinin-dependent growth phenotype on a yeast mutant that lacked the endogenous histidine kinase SLN1 (ref. 10), providing direct evidence that CRE1 is a cytokinin receptor. We also provide evidence that cytokinins can activate CRE1 to initiate phosphorelay signalling.

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